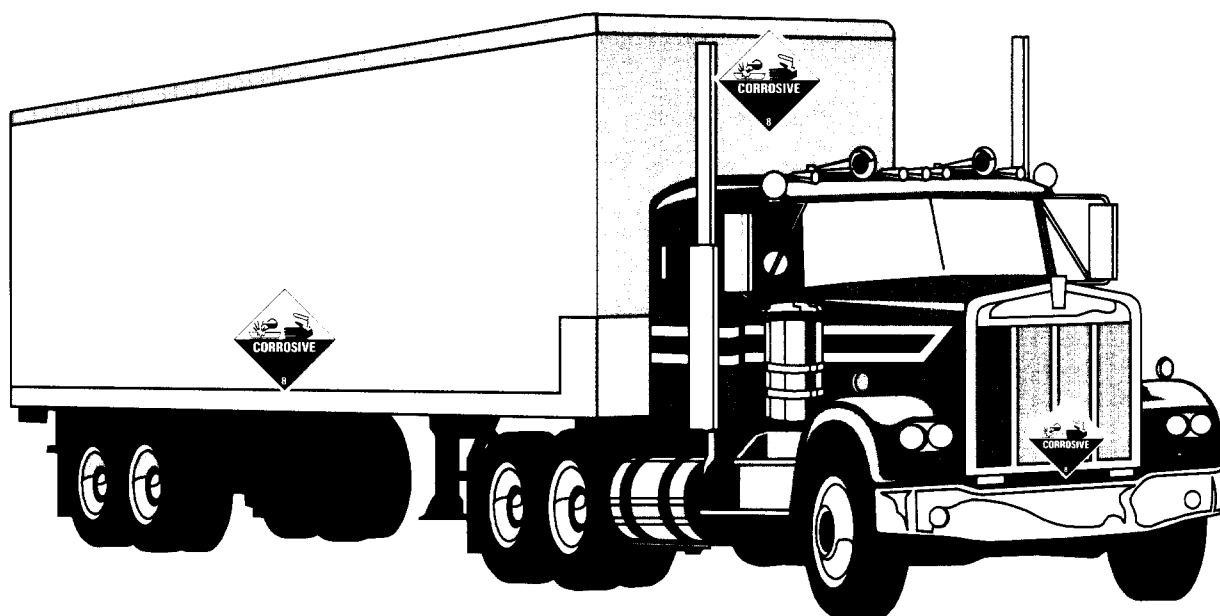


DO YOU KNOW . . .

HOW TO COMPLY WITH THE FEDERAL HAZARDOUS MATERIALS REGULATIONS



The purpose of this publication is to provide a broad overview of the requirements to safely transport hazardous materials. This publication discusses some of the regulatory requirements of the Department of Transportation. This publication was created using WordPerfect for Windows and Corel Gallery. The material contained in this handout is for training purposes only. For specific requirements, please see 49 CFR Parts 100-185 & 397.

The electronic file for this publication is posted on the Office of Motor Carriers homepage at <http://WWW.fhwa.dot.gov/omc/eta200g.htm/> and is available for downloading.

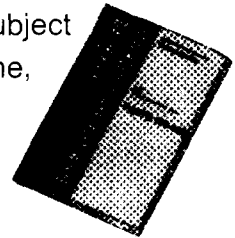
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OVERVIEW

The last few years has witnessed significant changes to the regulations for the transportation of hazardous materials. These changes were introduced under Docket HM-181 and Public Law 101-615, Hazardous Materials Transportation Uniform Safety Act of 1990 (HMTUSA 90). Docket HM-181 provided for a phased transition of the hazardous materials regulations which would to the maximum extent possible, be compatible with international standards, in order to facilitate foreign trade and maintain the competitiveness of U.S. goods. "HMTUSA 90" provided for the first major rewrite of the hazardous materials regulations including the following: requirements for registration, routing, and safety permits for certain types of hazardous materials; preemption of state requirements which are not the same as the federal requirement in 5 specific areas; training of hazmat employees; and a new definition of "Person".

The new definition of "person" made agencies and activities of the Federal Government, except the United States Postal Service (USPS), subject to the Federal Hazardous Materials Regulations (FHMR). Prior to this time, the government was only subject to the requirements contained within their own regulations for the safe transportation of hazardous materials.



The applicability of the hazardous materials was extended to all intrastate shipments of hazardous materials by highway in the final rule, Docket HM-200 published January 8, 1997. This final rule also provided exceptions for "materials of trade", "agricultural operations" and certain non-specification packaging used in intrastate commerce.

The SECRETARY of the Department Of Transportation receives the authority to regulate the transportation of hazardous materials from the Hazardous Materials Act (HMTA), as amended and codified in 49 U.S.C. 5101 et seq. The Secretary is authorized to issue regulations to implement the requirements of 49 U.S.C.. The Research and Special Programs Administration (RSPA) was delegated the responsibility to write the hazardous materials regulations, which are contained in 49 CFR Parts 100-180. In order to accomplish his responsibilities under the HMTA the Secretary "...may authorize any officer, employee, or agent to enter upon inspect, and examine, at reasonable times and in a reasonable manner, the records and properties of persons to the extent such records and properties relate to-(1) The manufacture, fabrication, marking, maintenance, reconditioning, repair, testing, or distribution of packages or containers for use by any "person" in the transportation of hazardous materials in commerce: or (2) the transportation or shipment by any **"person"** of hazardous materials in **commerce**."

In regards to commercial or governmental activities, Special Agents of the Department of Transportation can not be denied reasonable access to those areas that fall within the official scope of their duties. The Secretary has delegated this authority to the Federal Aviation Administration, (FAA); Federal Highway Administration, (FHWA); Federal Railway Administration, (FRA); Research and Special Programs Administration, (RSPA); and the United States Coast Guard, (USCG).

The hazardous materials regulations are constantly changing. These changes may be the result of changes to the international regulations, Congressional mandates, and/or advances in technology. The challenge facing shippers and transporters is to keep current. With all these changes taking place it is easy to overlook the underlying purpose of the regulations, which is safety!

The Government Printing Office has made the Federal Registers and 49 CFR available on the Internet. The website for the Federal Registers is http://www.access.gpo.gov/su_docs/aces002html/. The website address for 49 CFR is <http://www.access.gpo.gov/nara/cfr/index.html>

APPLICABILITY

DOT HAZARDOUS MATERIALS REGULATIONS APPLICABILITY

TRANSPORTATION OF HAZARDOUS MATERIALS IN COMMERCE BY AND THEIR OFFERING TO:

- 1) INTERSTATE, INTRASTATE, AND FOREIGN CARRIERS BY RAIL CAR, AIRCRAFT, MOTOR VEHICLE AND VESSEL.**
- 2) THE REPRESENTATION THAT A HAZARDOUS MATERIAL IS PRESENT IN A PACKAGE, CONTAINER, RAIL CAR, AIRCRAFT, MOTOR VEHICLE, OR VESSEL.**
- 3) THE MANUFACTURE, FABRICATION, MARKING, MAINTENANCE, RECONDITIONING, REPAIRING, OR TESTING OF A PACKAGE OR CONTAINER WHICH IS REPRESENTED, MARKED, CERTIFIED OR SOLD FOR USE IN THE TRANSPORTATION OF HAZARDOUS MATERIALS (49 CFR 171.1(a))**

GENERAL DOT HAZARDOUS MATERIALS REGULATORY REQUIREMENTS

“No person may offer or accept a hazardous material for transportation in commerce unless that person is registered in conformance with subpart G of Part 107 of this chapter, if applicable, and the hazardous material is properly classed, described, packaged, marked, labeled, and in condition for shipment as required or authorized...”(49 CFR 171.2(a))

Underlined in the preceding extract from the Hazardous Materials Regulations are three important terms; “person”, “offeror”, and “commerce” (See Appendix A Definitions). These three words are important in that they define when you are subject to the jurisdiction of the Department of Transportation. Additionally, you may be subject to the requirements of other Federal and/or State Laws.

The Uniformed Services of the United States generally are not subject to the commerce clause of the Constitution. Therefore, military shipments, transported on military vehicles or aircraft are not subject to Federal jurisdiction. Many states require military movements by highway to conform to 49 CFR or compatible state regulations. DOD and Service Regulations also require compliance with 49 CFR Parts 100-180. When in peacetime, the military services procure commercial transportation, (offering into commerce), **the military is engaged in commerce** and required to comply with 49 CFR.

FEDERAL GOVERNMENT

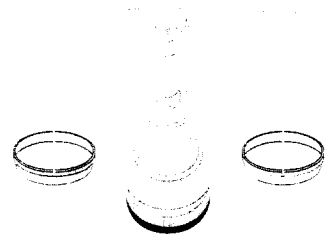
Most Federal Agencies including the Department of Defense are considered "offerors" when they ship hazardous materials by commercial carriers. In those rare instances where governmental agencies transport hazardous materials in commerce on government vehicles/aircraft, the agency is also considered a carrier.

Research and Special Program Administration in addition to the Modal Agencies have established programs to prioritize their inspection activities. In most cases their selection criteria for selecting shippers, "offerors", is similar i.e.; (1) Investigation of known shipper violations discovered during carrier audits, (2) Non-frivolous written complaints alleging violations of the Federal Hazardous Materials Regulations, (3) NRC and DOT 5800.1, spill and hazmat incident reports, (4) Referrals from other governmental agencies and special investigations targeting high risk hazardous materials such as explosives and radioactive materials. In almost all instances these shipper inspections are unannounced.

GOVERNMENT CONTRACTORS

Contractors were made fully subject to all the requirements of the Federal hazardous materials transportation law.

PENALTIES PER VIOLATION



CIVIL	MINIMUM	\$250.00
	MAXIMUM	\$27,500.00
CRIMINAL*	INDIVIDUAL	\$250,000.00
	CORPORATION	\$500,000.00

*** (Levels of fine from 18 U.S.C. and includes provision for imprisonment for not more than 5 years.)**

Although the Federal Government is exempt from the penalty provisions, (See Definition of person on page 9 of this H.O.) employees of the Federal Government are not exempt under the HMTA.

HAZARDOUS MATERIALS SHIPPER RESPONSIBILITIES

- | | |
|---|---|
| * DETERMINATION WHETHER A MATERIAL MEETS THE DEFINITION OF A "HAZARDOUS MATERIAL" | * SHIPPING PAPERS |
| * PROPER SHIPPING NAME | * EMERGENCY RESPONSE INFORMATION |
| * CLASS/DIVISION | * 24 HOUR EMERGENCY RESPONSE TELEPHONE NUMBER |
| * IDENTIFICATION NUMBER | * CERTIFICATION |
| * HAZARD WARNING LABEL | * COMPATIBILITY |
| * PACKAGING | * BLOCKING AND BRACING |
| * MARKING | * PLACARDING |

Listed above are the major responsibilities of HM shippers. General shipper responsibilities are contained in 49 CFR Part 173. Identification of a hazardous material is the first step, and frequently the most difficult. Of all the shipper's (offerors') responsibilities, the requirement to properly classify a hazardous material is very important. It is from the proper identification of the hazardous materials that the other requirements are based on. The next step is what do I call it? The requirement to provide emergency response information is frequently a concern of shippers. Who must sign the certification statement on the Bill of Lading? May a Carrier remove or alter my blocking and bracing?



How do I determine what name to use to identify hazardous material being offered for transportation? We are currently still in the process of transitioning to the new international requirements. Included in Appendix B are the transition dates contained in 49 CFR 171.14 organized by UN Class/Division. October 1, 1993 was a very important date. On that date all the hazard communication requirements, except placarding, become effective for all HM except Infectious Substances. Although the regulation of Marine Pollutants was not a part of the HM-181 Docket, the final rule issued on November 5, 1992 tied compliance to the transition dates in 49 CFR 171.14. Materials designated as Marine Pollutants are listed in a new Appendix B to Table 172.101. The rule applies to bulk shipments by all modes and non-bulk shipments by vessel.

The current 49 CFR is consistent with the international requirements. However, there are some differences in the requirements for shipment by international air, international vessel, and shipments to and from Canada. The HMR addresses the requirements for the movement of shipments prepared in accordance with the international and Canadian regulations in 49 CFR sections 171.11, 171.12, and 171.12(a) respectively.

HAZARDOUS MATERIALS CARRIER RESPONSIBILITY

- * SHIPPING PAPER**
- * PLACARD AND MARK VEHICLE**
- * LOADING AND UNLOADING**
- * COMPATIBILITY**
- * BLOCKING AND BRACING**
- * SHIPPERS REQUIREMENT WHEN PERFORMING OFFERORS FUNCTIONS**

Above lists contain the major responsibilities of HM carriers. Motor Carrier and offeror (shipper) responsibilities frequently overlap. When a motor carrier performs a shipper function, the carrier is responsible for performing that function in accordance with 49 CFR. The cargo space of the vehicle should be suitable for the material being shipped. The vehicle itself should be in sound mechanical condition. The carrier must check to insure that the material offered by the shipper is properly described and packaged.

Both carriers and shippers are responsible to insure their employees are properly trained as required by Subpart H, Part 172, 49 CFR.

**** For more specific requirements, carriers and shippers should consult the most current edition of 49 CFR Parts 100-185. Motor Carriers should also consult the Federal Motor Carrier Safety Regulations.**

HAZARDOUS MATERIALS TABLE

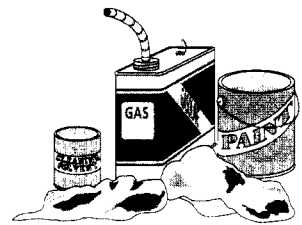
49 CFR 172.101

Table of Hazardous Materials and Special Provision

The purpose of the table is to assign proper shipping names, class and division, and guidance for packaging and handling requirements for hazardous materials. It is important to remember to read the instructions contained in front of table 172.101 when using this section. Many violations occur because individuals fail to review these instructions. Information that is available from the Table consists of: symbols which determine applicability, Proper Shipping Name and Shipping Description, Hazard Class or Division, Identification Number, Packing Group, Label(s) Required, Special Provisions, Packaging Authorizations, Quantity Limitations aboard aircraft, and Vessel Stowage Requirements.

HAZARDOUS MATERIALS

The definition of HAZARDOUS MATERIALS include those materials designated by the Secretary of the Department of Transportation as posing an unreasonable threat to the public and the environment. The terms "Hazardous Materials" includes all of the following: (1) Hazardous Substances, (2) Hazardous Wastes, (3) Marine Pollutants, (4) Elevated Temperature Material (5) Materials identified in 172.101, and (6) Materials meeting the definitions contained in Part 173.



(49 CFR 171.8)

HM REGULATED BY U.S. D.O.T.

UN HAZARD CLASS - 171.2

CLASS 1

EXPLOSIVES

DIVISION 1.1	MASS EXPLOSIVE HAZARD
DIVISION 1.2	PROJECTION HAZARD
DIVISION 1.3	MASS FIRE HAZARD
DIVISION 1.4	MINOR EXPLOSION HAZARD
DIVISION 1.5	VERY INSENSITIVE EXPLOSIVES
DIVISION 1.6	EXTREMELY INSENSITIVE EXPLOSIVES

Explosives were formerly classified as Class A, B, C, or Blasting Agent. A comparison of the old and new classification system is contained in 173.53. In addition to the change in classification systems we are now concern with compatibility Groups which are designated by alpha characters. ex. 1.1A, 1.2D, etc. Information on the different compatibility groups is contained in 49 CFR 173.52.

CLASS 2	GASES;	
	DIVISION 2.1	FLAMMABLE GASES
	DIVISION 2.2	NON-FLAMMABLE GASES
	DIVISION 2.3	POISONOUS OR TOXIC

This class includes materials that are COMPRESSED, DISSOLVED UNDER PRESSURE, OR PRESSURIZED CRYOGENIC LIQUIDS, AND LIQUIFIED GAS

CLASS 3 FLAMMABLE LIQUID

Includes materials whose Flash Point (FP) is not more than 141° F

NOTE: See Combustible Liquids below

CLASS 4	FLAMMABLE SOLIDS	
	DIVISION 4.1	FLAMMABLE SOLID
	DIVISION 4.2	SPONTANEOUSLY COMBUSTIBLE MATERIAL
	DIVISION 4.3	DANGEROUS WHEN WET

CLASS 5	OXIDIZING SUBSTANCES; ORGANIC PEROXIDES	
	DIVISION 5.1	OXIDIZER
	DIVISION 5.2	ORGANIC PEROXIDE

CLASS 6	POISONOUS (TOXIC) AND INFECTIOUS SUBSTANCES	
	DIVISION 6.1	POISONOUS (TOXIC) MATERIAL
	DIVISION 6.2	INFECTIOUS SUBSTANCE

CLASS 7 RADIOACTIVE MATERIAL

CLASS 8 CORROSIVES

CLASS 9

MISCELLANEOUS DANGEROUS GOODS

Category includes Environmentally Hazardous Substances, Elevated Temperature Material, Hazardous Wastes, and Marine Pollutants.

COMBUSTIBLE LIQUIDS Materials whose FP is greater than 141° F but less than 200° F are still regulated domestically as combustible liquids. Materials transported domestically only whose FP are 100° F up to 141° F may be reclassified as combustible IAW 173.120(b). A COMBUSTIBLE LIQUID which does not sustain combustion is not subject to the requirements of the HMRs' See Appendix H Part 173 for the required tests.

ORM-D

CONSUMER COMMODITIES

The definition of each UN Class and Division is contained in 49 CFR Part 173. In order to find the definition of a particular UN Class check 49 CFR 171.8 for the appropriate section reference in Part 173.

EXCEPTIONS:

Agricultural Operations

The transportation of agricultural products(see 49 CFR 171.8) by highway maybe excepted from some or all of the provisions of the hazardous materials regulations when transported in accordance with the provisions of 49 CFR 173.5.

Materials of Trade

The transportation of materials of trade(see 49 CFR 171.8) by highway maybe excepted from many of the requirements of the hazardous materials regulations when transported in accordance with the procedures contained in 49 CFR 173.6.

HAZARDOUS MATERIALS **COMMUNICATIONS**

Part 172 of 49 CFR contains the hazardous materials communication requirements in addition to the hazardous materials table, emergency response requirements, and training. The term hazardous materials communications commonly refers to shipping papers, marking, labeling, and placarding.

Shipping Papers

Shipping paper requirements are contained in 49 CFR Part 172 Subpart C. For the purpose of the hazardous materials regulations, a shipping paper is any shipping document whose purpose is to communicate a hazard, and conforms to the requirements contained in this Subpart. The description of hazardous materials on a shipping paper is contained in section 172.202. The basic description now includes proper shipping name, hazard class, identification number, and packaging group. The class names, IMO class and division numbers, or subsidiary hazard classes may be entered in parentheses. Entries are required for type packaging and weight (net or gross).

It is important to remember that except for materials in the U. N. Recommendations, the ICAO Technical Instructions, or the IMDG Code, a material that is not a hazardous material according to this sub-chapter may not be offered for transportation or transported when its description on a shipping paper includes a hazard class or an identification number specified in 49 CFR 172.101. This provision is most frequently violated when the shipments involve non-RCRA Waste, which are not considered DOT hazardous materials.

Depending on the material being transported additional information requirements to be entered on the shipping paper are contained in 49 CFR 172.203. Recent changes include entries for; Anhydrous ammonia and liquefied petroleum gas, Technical names for n.o.s. and other generic descriptions, Organic peroxides to include concentration, All poisonous materials subject to 172.203(m) where the poisonous constituent is not mentioned in the proper shipping name, for materials meeting the definition of poison-inhalation hazard, (see 171.8) "Poison-Inhalation Hazard" as provided in 172.203(m) and the words "Hazard Zone A", "Hazard Zone B", "Hazard Zone C", or "Hazard Zone D" as appropriate. (Also, see 173.133(b))

The regulation requires an emergency response telephone number to be

placed on the shipping paper. The telephone number must be monitored at all times when the material is in transportation to include storage incidental to transportation. The number must be of a person who is knowledgeable of the hazardous materials being shipped and the appropriate emergency response procedures, or a person who has immediate access to a person who has such knowledge. **This telephone number must be readily identifiable on the shipping paper.**

A problem with some Bills of Lading are the numerous emergency numbers for various types of problems, such as requests for delivery times or request for safe havens. Emergency responders may have trouble identifying the DOT emergency response telephone number.

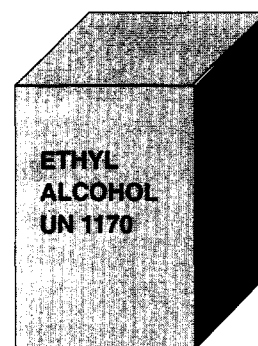
The DOT does not dictate who signs the certification on the shipping papers. The individual who signs the certification should be the individual most knowledgeable of the shipment.

P.L. 103-311 amended 49 U.S.C. 5110 to require **retention of hazardous materials shipping papers for 1 year.**

Marking

The requirements for marking of packages is contained in 49 CFR, Subpart D part 172. The basic marking requirement consists of the proper shipping name and identification number of the hazardous materials contained in the package. Depending on the material there may be additional marking requirements. For non-bulk packaging, technical names must be marked in parenthesis in association with the proper shipping name if listed in 172.203(k). Identification numbers not required for ORM-D and limited quantities.

Bulk packaging requirements are in section 172.302. Identification Numbers must be on each side and each end for packages 3785 L (1000 gals) or more and for cylinders permanently mounted on tube trailer motor vehicle. Identification Numbers on two opposing sides for packages less than 3785 L (1000 gals). Technical names not required for bulk packages.



You may not offer or transport a container unless the HM markings apply to the material contained in the package. There is an exception for empty containers if- (1) In a vehicle or freight container, the package is not visible, and is loaded and unloaded by the shipper or consignee, or (2) The markings are securely covered

during transport. Authorized Abbreviation 172.308. Liquid Hazardous Materials in Non-Bulk Packaging, 172.312. Poisonous Hazardous Materials, 172.313. Explosive Hazardous Material, 172.320.

LABELING

General labeling requirements are contained in 49 CFR subpart E Part 172. Additional labeling 172.402. Authorized label modifications 172.405. Placement of labels 172.406. Label Specifications 172.407.

There is a separate section for each of the authorized labels that gives an example of the label and describes the label. Sections 172.411 through 172.448 contain the required design of the new labels.



PLACARDING

General placarding requirements are contained in 49 CFR subpart F Part 172. Applicability of placarding requirements 172.500. Placarding is not required for infectious substances, ORM-D, limited quantities, small quantity shipments, and combustible liquids in non-bulk packages. Placards may not be displayed on any packaging, freight container, unit load device, motor vehicle or rail car unless the placard represents a hazardous material loaded into or onto the conveyance unless the shipment is in accordance with the TDG Regulation, the IMDG Code, or the UN Recommendations.

General placarding requirements 172.504. Tables 1 and 2 have been changed to reflect the placards covered by the new rule. The notes that are in the old rule under the tables have been incorporated into this section as paragraphs. The 1000 pound exception for Table 2 materials has been changed to 454 kg (1001 pounds). There is a section for each placard that gives an example and describes it.

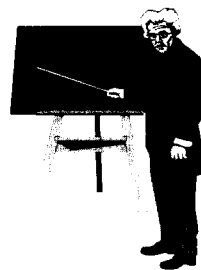


A frequent problem encountered involves the 1001 lb exception. the 1001 lbs. is aggregate gross weight. Aggregate gross weight is the total weight of all hazardous materials and its packaging loaded on a single transport vehicle.

*** NOTE: FOR SPECIFIC REQUIREMENTS FOR PREPARATION OF SHIPMENTS YOU MUST USE THE MOST CURRENT EDITION OF 49 CFR**

HAZARDOUS MATERIALS TRAINING

In addition to the communications requirements that took effect on October 1, 1993, hazmat employers must have trained hazmat employees hired prior to 07/02/93. For complete definition of hazmat employer and hazmat employee please see definitions contained in appendix A.



TRAINING REQUIRED

General awareness/familiarization: General awareness and familiarization training is intended to raise the hazmat employees awareness of the HMR and the purpose and meaning of the hazard communication requirements. All hazmat employees must have this training

Function-specific training: Function specific training is intended to teach the necessary knowledge, skills, and abilities for an individual's job function.

Safety training: This training provides information concerning the hazards posed by materials in the work place, personal protection measures. The training may include basic emergency response procedures but is not intended to satisfy the requirements of 29 CFR 1910.120.

Modal specific requirements: Any additional training required by 49 CFR PARTS 174, 175, 176, or 177.

The regulation does not specify sources of training. It is not the position of DOT to designate sources of training nor certify training courses/instructors/schools. It is the HAZMAT Employers responsibility to determine the adequacy of the training being presented. Training may be in any appropriate format including lecture, conference, self paced instruction, interactive video, etc.

INITIAL TRAINING

A new hazmat employee who changes job functions may perform those functions prior to completion of training provided the employee performs those functions under direct supervision of a properly trained and knowledgeable hazmat employee; and the training is completed within 90 days after employment or job function.

RECURRENT TRAINING

Employees must receive the required training every three years or any time there is a change in job function. **A change in the Hazardous Materials Regulations constitute a change in job function.**

RECORDKEEPING REQUIREMENTS

A record of current training, inclusive of the preceding three years, in accordance with this subpart shall be created and retained by each hazmat employer for each hazmat employee for as long as that employee is employed by that employer as a hazmat employee and for 90 days thereafter. The record shall include: (1) The hazmat employee's name; (2) The most recent training completion date of the hazmat employee's training; (3) A description, copy, or the location of the training materials used to meet the requirements; (4) The name and address of the person providing training; and (5) Certification that the hazmat employee has been trained and tested as required by this subpart.

The records required by this rule must be produced upon reasonable demand by an authorized employee of the Department of Transportation. Records may be in any format such as paper or electronic files as long as they contain the required information and are readily available.

Compliance with the current requirements for a CDL with a tank vehicle or hazardous materials endorsement provides a driver with the general knowledge and skills necessary to safely operate a commercial motor vehicle with hazardous materials cargo and may satisfy the training requirements. As a hazmat employee, additional specialized training may be required based on the job function and material-specific requirements related to the handling of hazardous materials. **The hazmat employer must determine the extent to which the CDL endorsement satisfies all training requirements. (note: CDL endorsement(s) may not fulfill the safety training requirement also not all drivers transporting HM are required to get a CDL.** It remains the responsibility of the hazmat employer to ensure that their hazmat employees are properly trained for each hazmat function in accordance with the requirements of this final rule. The training requirements for hazmat employees who also drive commercial motor vehicles are supplemental to the licensing requirements of the CDL program. Accordingly, **RSPA is not providing a blanket exception from this final rule for a hazmat employee who operates a commercial motor vehicle, with a tank vehicle or hazardous materials endorsement on a CDL.** I would recommend that motor carriers review the training material and test for the hazardous materials or cargo tank endorsement to the CDL and compare these with their company operations. For those operations not adequately covered by the CDL endorsement, the driver must be trained and tested. Recurrent training is required **every three years**. If a CDL Endorsement is valid for four years, or the regulations change, then the CDL Endorsement does not meet the recurrent training requirement.



EMERGENCY RESPONSE INFORMATION

*** A 24 HOUR EMERGENCY RESPONSE TELEPHONE NUMBER ON THE SHIPPING PAPER**

*** EMERGENCY RESPONSE INFORMATION ON THE SHIPPING PAPER OR IN A SEPARATE DOCUMENT MAINTAINED WITH THE SHIPPING PAPER.**



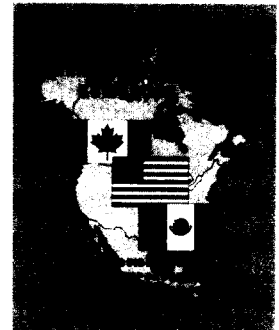
- DESCRIPTION OF THE HM**
- IMMEDIATE HAZARDS TO HEALTH**
- IMMEDIATE METHODS FOR HANDLING SMALL OR LARGE FIRES AND SPILLS OR LEAKS.**
- PRELIMINARY FIRST AID MEASURES**

The requirement for Emergency Response information is contained in Subpart G Part 172 49 CFR. The number must be maintained at all times that a shipment is in transit. The use of beepers, answering machines, and switchboards are not authorized.

The phone number must be to someone capable of providing information on the material. The written emergency response sheet must list the DOT proper description.

If the carrier's equipment has an emergency response guide or similar document on board there is no requirement to provide a separate emergency response document. This exception is valid only if the emergency response guide is on the vehicle.

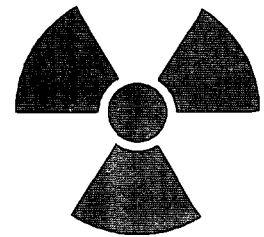
An MSDS sheet may be used to fulfill this requirement, if it contains all the required information. FED STD 313C requires all material procured by the government will be supplied with an MSDS that satisfies this requirement.



RADIATION PROTECTION PROGRAM

(Mandatory Compliance effective 1 October 1997)

On September 28, 1995 RSPA published as a Final Rule, HM Docket 169A, amending the Hazardous Materials Regulations pertaining to the transportation of radioactive materials. The principle purpose of this Rulemaking was the harmonizations of our requirements with that of the International Atomic Energy Agency (IAEA). One of the significant changes contained in this rulemaking concerns the establishment of a radiation protection program. The requirement for a radiation protection program is contained in a new Subpart I to 49 CFR Part 172.



In 1987 the Environmental Protection Agency (EPA) published guidelines on radiation protection. One of the principal concepts of the program was to limit exposure to as low as is reasonably achievable (ALARA). In publishing this new rule RSPA believes that the new requirements are consistent with the intent of EPA's requirements. This requirement applies to persons who offer for transportation, accept for transportation, or transports Class 7 (radioactive) materials, 49 CFR 172.801. The requirements of the radiation protection program are contained in 172.803. The requirement does not apply to person who offer or transport less than 200 TI of packages in a 12 month period. Operations in which personnel will not be exposed to 5mSv(500 mrem) or more per year, that have been evaluated by an authorized official are also exempt.

The requirements include the maintenance of a written plan which meets the requirements of this Subpart, a record of the radiation dose that each hazmat employee has received, and reports to RSPA when exposure to any one hazmat employee or the public exceeds the exposure limit and specified time indicated in 49 CFR 172.805.

If an offeror or transporter of Class 7 (radioactive) material is not required to establish a radiation protection program, they must develop and maintain records which demonstrate why the program is not required.[172.805(d)]

PACKAGING

WHAT IS PERFORMANCE ORIENTED PACKAGING?

A packaging construction system based on performance standards developed in the form of Recommendations by the United Nations Committee of Experts on the Transport of Dangerous Goods (UN Recommendations). The UN standards have general requirements for materials, construction and a maximum capacity. Strength and integrity of containers are established by a series of performance tests which the package must pass or be capable of passing before it is authorized for the carriage of hazardous materials. The international standards have general requirements for materials, construction and a maximum capacity as compared to detailed DOT specifications for non-bulk packagings formerly contained in 49 CFR 178.

Packaging requirements are based on the Packing Group of the material, its vapor pressure, and chemical compatibility between the package and the HM. Non-bulk packaging standards are based upon a number of performance tests. Vibration test for non-bulk packaging are required domestically in addition to UN Recommendation performance oriented tests. Reuse of plastic and metal drums based on minimum thickness requirements. (This substitutes for the lack of performance tests in UN standards with regard to puncture resistance, abrasion resistance and metal fatigue). Package manufacturer's written notification to customers of any specification shortfalls or steps to be taken to conform with applicable specification. Performance tests for UN packaging, including design qualification tests and periodic retests, are included in Part 178.

PACKING GROUPS

The packing group designated in the 172.101 Table, column 5, indicates the degree of danger presented by the material. The shipper is responsible for determining the appropriate packing group.

<u>Packing Group</u>	<u>Degree of Danger</u>
I	Great
II	Medium
III	Minor

If more than one packing group is indicated for an entry, the packing group for the HM is determined using the criteria in Subpart D of part 173.

Example: For Class 3 (flammable liquids) materials having more than one packing group indicated in 172.101 Table, column 5, the packing group is determined by applying the following criteria:

<u>Packing Group</u>	<u>Flash Point</u>	<u>Initial Boiling Point</u>
I		< 35 C
II	< 23 C (73 F)	> 35 C
III	> 23 C < 60 C	> 35 C

49 CFR 173.121

PACKAGING RESPONSIBILITIES

General requirements are contained in 49 CFR 171.2(c). No person may represent, certify, mark, sell, or offer a packaging or container as meeting the requirements of the HMR, governing its use in transportation of a hazardous material, whether or not it is used or is intended to be used for transportation of a hazardous material, unless the packaging or container is manufactured, fabricated, marked, maintained, reconditioned, repaired, or retested, as appropriate, in accordance with the HMR.

Shipper Responsibility 173.22 Classify and describe the HM in accordance with Parts 172 and 173. Determine that the packaging or container is an authorized packaging, including all special requirements, and that the package has been manufactured, assembled, and marked in accordance with the HMR. The shipper may accept the manufacturer's certification, specification, approval, or exemption marking in determining the packaging compliance. Based on written instructions by the manufacturer [178.2(c)], perform all actions which need to be taken for the packaging to conform to the requirements of Part 178. Perform any packaging functions required by 173.24, 173.24a, and 173.24b for which the shipper is responsible such as filling limits, compatibility between the HM and container, and securing and cushioning.



It is the responsibility of the packaging manufacturer and the person who offers a hazardous materials for transportation, to the extent that assembly functions including final closure are performed by the latter, to assure that each package is capable of passing the prescribed tests.

Performance Tests The following tests are performed as appropriate for each type of package. Drop test, 178.603; Leakproofness test, 178.604; Hydrostatic pressure test, 178.605; Stacking test, 178.606; Cooperage test for bung-type wooden barrels, 178.607; Chemical compatibility test for plastic receptacle, 178.608; Vibration standard, 173.24a(a)(5).

NOTE: Each section must be consulted to determine the applicable test for each type of container.

PACKAGE TESTING consists of the following: Design Qualification Testing, 178.601(c)(1); Periodic Retesting, 178.601(c)(2); Production Testing, 178.601(c)(3); Frequency of Periodic Testing, 178.601(e); Test Samples, 178.601(f).

The person who certifies the design type Responsibility 178.2(a) Designs, constructs, and tests packagings in accordance with Part 178. 178.2(b) Certify compliance with Part 178 by marking the DOT spec number or UN standard marking on the container. 178.2(c) Inform in writing each person to whom the packaging is transferred of all requirements of Part 178 not met at time of transfer, and all actions that need to be taken for the package to conform to requirements of Part 178. The written statements must be retained by the manufacturer for at least one year.

PERFORMANCE ORIENTED PACKAGE MARKING

The Manufacturer's Marking Requirement, is contained in 49 CFR Part 178 Subpart L Section 178.503.

1. The United Nations symbol.
2. Packaging identification code consisting of:

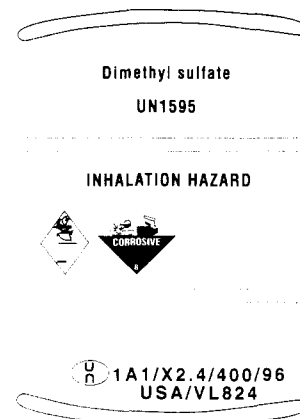
Type of packaging
Material of construction
Category of packaging (when appropriate)

3. A letter identifying the performance standard.
X - Meeting packing group I, II, and III tests.
Y - Meeting packing group II and III tests.
Z - Meeting only packing group III tests.

4. Specific gravity or mass.
Specific gravity for packaging without inner linings designed to hold liquids rounded down to the first decimal for those nonviscous liquids having a specific gravity greater than 1.2.
Maximum gross mass in kilograms for viscous liquids, solids, or inner packagings.

5. A letter "S" for packaging intended only for solids or inner packagings, Test pressure in kilopascals of the hydrostatic test pressure.

6. The last two digits of the year of manufacture.
7. The letters indicating the country of origin (e.g., "USA").



8. The name and address or symbol of the person applying the marks.
9. Other markings: Month of manufacture for plastic drums (1H) and jerricans(3H). May be marked in a different location. Minimum thickness of packaging material in millimeters (mm) for metal or plastic drums or jerricans intended for reuse. Tare weight preceded by "TW" for packaging intended for nitric acid.
10. Reconditioned packaging. Items 1-6 and thickness in millimeters must be applied in a permanent manner able to withstand reconditioning.

The following additional markings are required:

Name of the country in which the reconditioning was performed.

Name and address or symbol of the reconditioner.

Month and last two digits of the year of reconditioning.

The letter "R".

The letter "L" for packaging passing a leakproofness test.

COMPATIBILITY

Both shippers and carriers are responsible for compatibility. The requirement for shippers to comply with compatibility considerations is contained in 49 CFR 173.22. In order to determine compatibility for shipments by highway, shippers and carriers should refer to 49 CFR 177.848 - Segregation of hazardous materials.

This section applies to: Packages that require labeling, Compartments of multi-compartmented cargo tanks, and Portable tanks loaded in transport vehicles or freight containers. If a vehicle is to be transported aboard a vessel, other than a ferry, and is loaded with hazardous materials, that vehicle must meet the compatibility requirements of Part 176. Regardless of the hazard class, cyanide and cyanide mixtures can not be transported with acids.

In order to determine compatibility you are now required to be familiar with two tables which are:

Segregation Table for Hazardous Materials is used for all materials. However, this table is only used for Class 1 materials when comparing Class 1 with another class other than Class 1.

Compatibility Table for Class 1 (Explosive) Materials is used only when determining compatibility for one Class 1 material and another Class 1 material.

When using the aforementioned tables be sure to read the entire section, 178.848, be aware there are special instructions and exceptions listed. In addition to this section, shippers and carriers should check sections 177.834 through 177.844 for any additional handling requirements.

BLOCKING AND BRACING

The responsibility for blocking and bracing HM for shipment by highway in accordance with DOT regulations, is the motor carrier's. Therefore a carrier who removes and or alters blocking and bracing material is not in violation of federal law. If the hazardous materials leaks or spills during transport due to insufficient blocking and bracing the motor carrier is at fault.

DEFINITIONS

AGRICULTURAL PRODUCT

means a hazardous material, other than a hazardous waste, whose end use directly supports the production of an agricultural commodity including, but not limited to a fertilizer, pesticide, soil amendment or fuel. An agricultural product is limited to a material in Class 3, 8, or 9, Division 2.1, 2.2, 5.1, or 6.1, or an ORM-D material.

COMMERCE: The term "commerce" means trade, traffic, commerce, or transportation within the jurisdiction of the United States.

(A) between a place in s State and any place outside of such State, or (B) which affects trade, traffic, commerce, or transportation described in subparagraph (A). 49 USC 5101 et seq.

GOVERNMENT NOT ENGAGED IN COMMERCE:

(1) The Government service or activity benefits the community as a whole and is available to the public at little or no direct expense. (2) The service or activity is undertaken for the purpose of public service rather than for pecuniary gain.(3) Government is the principal provider of activity: and (4) Government is particular suited to provide the service or perform the activity. (5) The activity is supported through general tax revenues

GOVERNMENT IS ENGAGED IN COMMERCE:

(1) When it engages in activities contrary to the aforementioned circumstances. (2) When the government "offers" material into commerce.

COMMERCIAL MOTOR VEHICLE:

A COMMERCIAL MOTOR VEHICLE MEANS A MOTOR VEHICLE OR COMBINATION OF MOTOR VEHICLES USED IN COMMERCE TO TRANSPORT PASSENGERS OR PROPERTY IF THAT MOTOR VEHICLE-(A) HAS A GROSS COMBINATION WEIGHT RATING OF 26,001 OR MORE POUNDS INCLUDING A TOWED UNIT WITH A GROSS VEHICLE WEIGHT RATING OF MORE THAN 10,000 POUNDS; OR (B) HAS A GROSS VEHICLE WEIGHT RATING OF 26,001 OR MORE POUNDS; OR (C) IS DESIGNED TO TRANSPORT 16 OR MORE PASSENGERS INCLUDING THE DRIVER; OR (D) IS OF ANY SIZE AND IS USED TO TRANSPORT ANY QUANTITY OF HAZARDOUS MATERIALS WHICH REQUIRE PLACARDING.

CONTRACTORS:

Any person who, under contract with any department, agency, or instrumentality of the executive, legislative, or judicial branch of the Federal Government, transports, or causes to be transported or shipped, a hazardous material or manufactures, fabricates, marks, maintains, reconditions, repairs, or tests a package or container which is represented, marked, certified, or sold by such person as qualified for use in transportation of hazardous materials shall be subject to and comply with all provisions of the Federal hazardous material transportation law, or the regulations issued thereunder “

HAZMAT EMPLOYER:

a person who uses one or more of its employees in connection with: transporting hazardous materials in commerce; causing hazardous materials to be transported or shipped in commerce; or representing, marking, certifying, selling, offering, manufacturing, reconditioning, testing, repairing, or modifying containers, drums, or packaging as qualified in the transportation of hazardous materials. This term includes an owner-operator of a motor vehicle which transports hazardous materials in commerce. This term includes any department, agency, or instrumentality of the United States, a State, a political subdivision of a State, or an Indian tribe engaged in the first sentence of this definition.

HAZMAT EMPLOYEE:

a person who is employed by a hazmat employer and who in the course of employment directly affects hazardous materials transportation safety. This term includes an owner-operator of a motor vehicle which transports a hazardous materials in commerce. This term includes an individual, including a self-employed individual, employed by a hazmat employer who, in the course of employment: (1) Loads, unloads, or handles hazardous materials; (2) Manufactures, tests, reconditions, or repairs, modifies, marks, or otherwise represents containers, drums, or packages as qualified for use in the transportation of hazardous materials; (3) Prepares hazardous materials for transportation; (4) Is responsible for safety of transporting hazardous materials; or (5) Operates a vehicle used to transport hazardous materials.

MATERIALS OF TRADE

means a hazardous material, other than a hazardous waste, that is carried on a motor vehicle—(1) For the purpose of protecting the health and safety of the motor vehicle operator or passengers; (2) For the purpose of supporting the operation of a motor vehicle (including its auxiliary equipment) or; (3) By a private motor carrier (including vehicles operated by a rail carrier) in direct support of a principal business other than transportation by a motor vehicle.

OFFEROR:

Any person who performs, attempts to perform or, under the circumstances involved, is contractually or otherwise responsible to perform, any of the functions assigned to the offeror or shipper by the HMR is legally responsible under the HMR for their proper performance. Performance or attempted performance of any offeror or shipper function may be evidence of responsibility under the HMR for performance of other offeror or shipper functions. No shipper commercial act, such as a sale or transfer of ownership, is necessarily determinative of that responsibility

NOTE: In actuality there may be one or more offerors, jointly and severally responsible for compliance with the HMR, in any transportation scenario depending upon the details of the scenario!

PERSON:

Means an individual, firm, co-partnership, corporation, company, association, joint-stock association, including any trustee, receiver, assignee, or similar representative thereof, or government, Indian tribe, or agency or instrumentality of any government or Indian tribe when it offers hazardous materials for transportation in commerce or transports hazardous materials in furtherance of a commercial enterprise, BUT SUCH TERM DOES NOT INCLUDE:

- (1) THE UNITED STATES POSTAL SERVICE; or
- (2) FOR THE PURPOSES OF SECTIONS 110 AND 111 OF THE HAZARDOUS MATERIALS TRANSPORTATION ACT (49 App. U.S.C. 5123-5124), ANY AGENCY OR INSTRUMENTALITY OF THE FEDERAL GOVERNMENT

SHIPPER:

The word "shipper" is not specifically defined in the HMR (49 CFR Parts 170-179), due primarily to the fact that it is not possible for the Department to account for the numerous commercial arrangements that may exist under that concept. Although the word "shipper" does appear, it is used in an ordinary layman's manner rather than as a specific, technical term of art. Consequently, responsibilities generally are placed on "offerors" for performance of the functions associated with "offering" hazardous materials for transportation (e.g., see the general duty and applicability provisions in 49 CFR 171.1, 171.2, 172.3, and 173.1).

TRANSPORTS:

The term "transports" or "transportation" means any movement of property by any mode, and any loading, unloading, or storage incident thereto.

TRANSPORTATION IN COMMERCE ON A PUBLIC HIGHWAY:

Transportation on (across or along) roads outside of Government properties generally is transportation in commerce. If a road is used by members of the general public (including dependents of Government employees) without their having to gain access through a controlled access point, transportation on (across or along) a road on Government properties is in commerce. On the other hand if access to a road is controlled at all times through the use of gates and guards, transportation on that road is not in commerce.

COMMERCIAL MOTOR VEHICLE SAFETY ACT OF 1986 required DOT to establish Federal standards for States to test and license truck and bus drivers, establish uniform penalty provisions, and establish a data system containing data on drivers.

COMMERCIAL DRIVERS LICENSE REGULATION APPLICABILITY

THE RULES IN THIS PART APPLY TO EVERY PERSON WHO OPERATES A **COMMERCIAL MOTOR VEHICLE** IN INTERSTATE, FOREIGN, OR INTRASTATE COMMERCE AND TO ALL EMPLOYEES OF SUCH PERSONS.

COMMERCIAL DRIVERS LICENSE

Does not apply to active duty military drivers

Does apply to Government Civilian Employees

MOTOR CARRIER SAFETY ACT OF 1990

Of all the requirements contained in this Act, the one that should be of interest is

Federal agencies are prohibited from using carriers rated unsatisfactory to provide transportation for hazardous materials in quantities requiring placarding.

SAFETY RATINGS AND CARRIER PROFILES are public information and may be obtained by calling or writing:

OMC - Data Dissemination Program
P.O. Box 3248
Merrield, Virginia 22116-3248
(703) 280-4001 or 1-(800) 832-5660

This information is also available on the Internet on a new system called SAFER (Safety and Fitness Electronic Record) at <http://www.safersys.org>.

TRANSITION PERIODS *

The HM-181 Final Rule was Effective October 1, 1991 On October 1, 1996 all provisions of HM 181 are in effect with the following exceptions:

PACKAGES FILLED PRIOR TO OCTOBER 1, 1991 May be offered and transported until OCTOBER 1, 2001 if:

- Is in compliance with October 1, 1990 49 CFR;
- Is filled prior to October 1, 1991;
- Is not emptied or refilled after October 1, 1991
- Is marked "Inhalation Hazard", if appropriate, in accordance with 172.313 or Special Provision 13 as assigned in Column 7 of 172.101.

Non-bulk packages filled prior to October 1, 1996 (other than a cylinder) may be offered for transportation and transported domestically prior to October 1, 1999 if it:

- Conforms to requirements in effect on September 30, 1996;
- Was filled with hazardous materials prior October 1, 1996; and
- Is not emptied and refilled on or after October 1, 1996.

Non-Specification Fiber Drums with a removable head is authorized for liquid hazardous materials on the later of September 30, 1997, or authorization date for funding of Chapter 51 of 49 U.S.C. beginning with FY 98 if:

- The liquid hazardous material is in PG III
- Is not a PIH material
- Was authorized for use on September 30, 1991

Placarding by Highway Transportation Only

Until October 1, 2001 placards which conform to specifications for placards in effect on September 30, 1991, may be used for highway transportation only, in place of the placards specified in Subpart F of Part 172, in accordance with the table contained in 49 CFR 171.14(c)(2).

**OFFICE OF MOTOR CARRIER
HAZARDOUS MATERIALS PROGRAM MANAGERS**

Region 1; CT. ME. NH. NJ. NY. RI. VT. PR.

*Barry Rubenstein
Leo W. O'Brien Federal Building
Clinton & North Pearl Streets, Room 737
Albany, New York 12207
Com (518) 431-4239
Fax (518) 431-4208
Internet Address:
Barry.Rubenstein@FHWA.dot.gov*

Region 3; DE. DC. MD. PA. VA. WV.

*Danny Swift
City Cresecent Building
10 South Howard Street, Suite 4000
Baltimore, Maryland 21201
Com (410) 962-4571
Fax (410) 962-2273
Internet Address: Danny.Swift@FHWA.dot.gov*

Region 4; AL. FL. GA. KY. MS. NC. SC. TN.

*Thomas Dunaway
100 Alabama Street, 17th Floor
Atlanta, Georgia 30303-3104
Com (404) 562-3600
Fax (404) 562-3704
Internet Address:
Thomas.Dunaway@FHWA.dot.gov*

Region 5; IL. IN. MI. MN. OH. WI.

*Joseph DeLorenzo
19900 Governors Drive, Suite 210
Olympia Fields, Illinois 60461-1021
Com (708) 283-3577
Fax (708) 283-3579
Internet Address:
Joseph.DeLorenzo@FHWA.dot.gov*

Region 6; AR. LA. NM. OK. TX.

*Dennis G. Martini
8A00 Federal Building
819 Taylor Street P. O. Box 902003
Fort Worth, Texas 76102
Com (817) 978 3225
Fax (817) 978-4666
Internet Address: Dennis.Martini@FHWA.dot.gov*

Region 7; IA. KS. MO. NE.

*Fredrick L. McGraw
6301 Rockhill Road
P.O. Box 419715
Kansas City, Missouri 64141-6715
Com (816) 276-2760
Fax (816) 363-3804
Internet Address:
Frederick.McGraw@FHWA.dot.gov*

Region 8; CO. MT. ND. SD. UT. WY.

*Ronald Williams
555 Zang Street Room 190
Lakewood, Colorado 80228
Com (303) 969-6744
Fax (303) 969-6967
Internet Address:
Ronald.Williams@FHWA.dot.gov*

Region 9; AZ. CA. HI. NV. SA. GM. NMI.

*Robert J. Brown Jr.
201 Mission Street,
Suite 2100
San Francisco, California 94105
Com (415) 744-3088
Fax (415) 744-2665
Internet Address: Robert.Brown@FHWA.dot.gov*

Region 10; AK. ID. OR. WA.

*Curnis King
KOIN Center, Suite 600
222 SW Columbia Street
Portland, Oregon 97201
Com (503) 326-4902 X227
Fax (503) 326-5835
Internet Address:
Curnis.King@FHWA.dot.gov*

PUBLICATION SOURCES

Copies of the regulations may be purchased from the nearest Government Printing Office Bookstore. Commercial Sources are also listed on RSPA's Hazardous Materials Information Exchange (HMIX). The HMIX is a computer bulletin board listing valuable information on rulemakings, training, and publications. For more information call 1-800-planfor (752-6367) or contact RSPA at:

Research and Special Programs Administration
400 Seventh Street, S.W., DHM-50 Room 8104
Washington, DC 20590-0001
Internet **TRAINING@RSPA.DOT.GOV**

The following is a partial listing of sources for additional publications and training material. **This list is provided as a courtesy and is not an endorsement for these companies or their products.** For a more detailed listing you may write:

J.J. Keller & Associates, Inc
3003 west Breezewood Lane
Neenah, WI 54956
(414) 722-2848
(800) 558-5011

BNA Communications, Inc.
9439 Key West Avenue
Rockville, MD 20850
(800) 233-6067
Fax (301) 948-2085

NUS Training Corporation
12 Meem Avenue
Gaithersburg, MD 20877
(301) 258-2500
Fax (301) 258-1731

Industrial Training Systems Corp.
1303 Marsh Lane
Carrolltown, TX 75006
(972) 417-4100
(800) 588-8788

American Trucking Association, Inc.
2200 Mill Road
Alexandria, VA 22314
1-800 ATA-LINE
(703) 838-1754

Compressed Gas Association
1725 Jefferson Davis Hwy.
Arlington, VA 22202-4102
(703) 412-0900

LabelMaster
5724 North Pulaski Road
Chicago, IL 60646
(312) 478-0900
1-800 621-5808

Centurion Video
4200 Glenbrook Ave.
Bakersfield, CA 93306-2222
(805) 873-1665
Fax (805) 873 -1666

Idaho Dept. of Law Enforcement
MCSAP Division Video Department
700 South Stratford Drive
P.O. Box 700
Meridian, ID 83680
(208) 884-7230

Hazardous Materials Advisory Council
1101 Vermont Avenue, N.W.
Suite 301
Washington, DC 20005
(202) 289-4550
(800) 634-1598

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